

DEPARTMENT OF VETERANS AFFAIRS  
VHA MASTER SPECIFICATIONS

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**SECTION 00 01 15**  
**LIST OF DRAWINGS**

The drawings listed below accompanying this specification form a part of the contract.

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**SECTION 01 00 00  
GENERAL REQUIREMENTS**

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**SECTION 01 00 00**  
**GENERAL REQUIREMENTS**

**1.1 GENERAL INTENTION**

1. A. Contractor shall completely prepare site for operations and furnish labor and materials and perform work for installation of blast/security/safety film on windows at the Omaha and Grand Island VA Hospitals as required by drawings and specifications. Contractor shall move and replace furniture and equipment as needed to gain access to windows. The VA will arrange for movement of any IT equipment.
- B. Visits to the site by Bidders may be made only by appointment with the Medical Center Engineering Officer.
- C. All employees of general contractor and subcontractors shall comply with VA security management program and obtain permission of the VA police, be identified by project and employer, and restricted from unauthorized access.
- D. Prior to commencing work, general contractor shall provide proof that a OSHA designated "competent person" (CP) (29 CFR 1926.20(b)(2) will maintain a presence at the work site whenever the general or subcontractors are present.
- E. Training:
  1. All employees of general contractor or subcontractors shall have the 10-hour or 30-hour OSHA Construction Safety course and other relevant competency training, as determined by RE/COR acting as the Construction Safety Officer with input from the facility Construction Safety Committee.
  2. Submit training records of all such employees for approval before the start of work.
- H. VHA Directive 2011-36, Safety and Health during Construction, dated 9/22/2011 in its entirety is made a part of this section

## 1.2 STATEMENT OF BID ITEM(S)

- A. ITEM 1, GENERAL CONSTRUCTION: Install Safety Film on Window, NWIHCS: Work includes general construction and necessary movement of equipment and furniture and certain other items.
- B. Bid Alternate 1: PROVIDE COST TO FURNISH AND INSTALL SAFETY FILM AND IPA ATTACHMENT TO IDENTIFIED WINDOWS IN AREA IN BUILDING 1, 5TH FLOOR, AT THE OMAHA VA HOSPITAL. (SEE DRAWING SHEET A2.1)
- C. Bid Alternate 2: PROVIDE COST TO FURNISH AND INSTALL SAFETY FILM AND IPA ATTACHMENT TO IDENTIFIED WINDOWS IN AREA IN BUILDING 1, 6TH FLOOR, AT THE OMAHA VA HOSPITAL. (SEE DRAWING SHEET A2.2)
- D. Bid Alternate 3: PROVIDE COST TO FURNISH AND INSTALL SAFETY FILM AND IPA ATTACHMENT TO IDENTIFIED WINDOWS IN AREA IN BUILDING 1, 7TH FLOOR, AT THE OMAHA VA HOSPITAL. (SEE DRAWING SHEET A2.3)

## 1.3 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR

- A. Specifications and drawings will be made available in electronic format only. Paper sets can be reproduced at the contractors' expense.

## 1.4 Construction Security Requirements

### A. Security Procedures:

- 1. **Badge Requirements:** General Contractor's employees shall not enter the project site without appropriate badge. They may also be subject to inspection of their personal effects when entering or leaving the project site.

#### a. **Local ID (Minimum ID Requirement for All Employees**

**Performing Work Under this Contract):** All employees of the contractor and subcontractor(s) must display a VA issued badge (Local ID), with photograph, at all times on Medical Center property. Local IDs allow employees access to public areas of the Medical Center and the construction area, only.

- (1) Employees of the contractor and subcontractor(s) shall provide two forms of identification and a completed VA NWIHCS Police Service Fingerprint Request Form to the COR not less than seven days prior to the employee starting work at the Medical Center. The COR will schedule an appointment with the VA NWIHCS Police Service for the employee to be fingerprinted and issued

a Local ID. Employees shall not be allowed to work on Medical Center property until Local ID has been issued.

- (2) All employees of the contractor and subcontractor(s) shall be fingerprinted by the VA NWIHCS Police Service. Fingerprints shall be forwarded to and kept on file by the VA Office of Personnel Management in Washington, D.C.

**b. Non-PIV Identity Card (Required for Employees Acting in a Supervisory Capacity and/or Requiring a VA Issued Key):**

Employees of the contractor and subcontractor(s) acting in a supervisory capacity and maintaining a sustained presence on site shall be designated "responsible persons" and shall require a VA issued Non-PIV Identity Card, which shall be displayed at all times when on Medical Center property.

- (1) Employee(s) of the contractor or subcontractor(s) designated as responsible person(s) shall submit a completed VA NWIHCS Police Service Fingerprint Request form to the COR, who will initiate a request for a VA identification for the designated employee(s).
- (2) Employee(s) requiring a VA issued Non-PIV Identity Card shall agree to be fingerprinted by the VA NWIHCS Police Service, have their fingerprints forwarded to and maintained on file by the VA Office of Personnel Management, have their name and fingerprints shared with local law enforcement agencies, and undergo a background investigation ("Special Agreement Check") conducted by the VA Human Resources department. The Special Agreement Check shall be completed and VA identifications shall be issued to designated employee(s) prior to the start of work.
- (3) At least one responsible person designated by the contractor and approved by the COR or CO shall be present at all times when employees of the contractor or subcontractor(s) are working on Medical Center property.

- c. Local IDs and Non-PIV Identity Cards shall be valid for six months from the date of issue. The contractor shall be responsible for ensuring all employees requiring access beyond the six month period renew badges and identification cards before they expire. Badge/ID card renewal shall be scheduled with the VA NWIHCS Police Service through the COR not less than 15 calendar days prior to the ID card expiration. Failure to renew badges/ID cards before the end of their valid period may result in employees losing access

to the Medical Center until a new badge/ID card application has been completed and approved, and a new badge/ID card issued. Costs and liabilities associated with delays caused by failure of the contractor's and subcontractor(s)' employees to maintain a current badge/ID card shall be born solely by the contractor.

- d. All employee information provided to the VA to meet the requirements of this section is protected by the Privacy Act of 1974. The VA follows the requirements of the Privacy Act, which protects personal information that the VA maintains in "systems of records". Information provided to the VA may not be disclosed unless permitted pursuant to 38 CFR 1.500 - 1.599. Records provided to and maintained by the VA may not be altered or destroyed, except as authorized by 38 CFR 1.579.
- e. Keys, access cards, and identification cards shall remain the property of the government, and shall be returned to the government at contract completion, when the employee's presence is no longer required at the Medical Center, or when requested by the COR or CO. Contractor shall reimburse the government for the replacement cost of any keys, electronic access cards, or government issued identification cards lost or damaged as a result of negligence or malicious act by employees of the contractor or subcontractor(s).

## 1.5 FIRE SAFETY

A. Applicable Publications: Publications listed below form part of this Article to extent referenced. Publications are referenced in text by basic designations only.

1. American Society for Testing and Materials (ASTM):

E84-2009.....Surface Burning Characteristics of Building  
Materials

2. National Fire Protection Association (NFPA):

10-2010.....Standard for Portable Fire Extinguishers

30-2008.....Flammable and Combustible Liquids Code

51B-2009.....Standard for Fire Prevention During Welding,  
Cutting and Other Hot Work

70-2011.....National Electrical Code

241-2009.....Standard for Safeguarding Construction,  
Alteration, and Demolition Operations

### 3. Occupational Safety and Health Administration (OSHA):

29 CFR 1926.....Safety and Health Regulations for Construction

- B. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.
- C. Temporary Heating and Electrical: Install, use and maintain installations in accordance with 29 CFR 1926, NFPA 241 and NFPA 70.
- D. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with Project Manager.
- E. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to Project Manager.
- F. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241 and NFPA 10.
- G. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.
- H. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Coordinate with, and report findings and corrective actions weekly to Project Manager.
- I. Smoking: Smoking is prohibited in and adjacent to construction areas inside existing buildings and additions under construction. In separate and detached buildings under construction, smoking is prohibited except in designated smoking rest areas.
- J. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily.

**1.6 OPERATIONS AND STORAGE AREAS**

- A. The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.
- B. Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.
- C. The Contractor shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

**(FAR 52.236-10)**

- D. Working space and space available for storing materials shall be as determined by the Project Manager.
- E. Workmen are subject to rules of Medical Center applicable to their conduct.
- F. Execute work so as to interfere as little as possible with normal functioning of Medical Center as a whole, including operations of utility services, fire protection systems and any existing equipment, and with work being done by others. Use of equipment and tools that transmit vibrations and noises through the building structure, are not permitted in buildings that are occupied, during construction, jointly

by patients or medical personnel, and Contractor's personnel, except as permitted by Project Manager where required by limited working space.

1. Do not store materials and equipment in other than assigned areas.
2. Schedule delivery of materials and equipment to immediate construction working areas within buildings in use by Department of Veterans Affairs in quantities sufficient for not more than two work days. Provide unobstructed access to Medical Center areas required to remain in operation.
3. Where access by Medical Center personnel to vacated portions of buildings is not required, storage of Contractor's materials and equipment will be permitted subject to fire and safety requirements.

G. Phasing: To insure such executions, Contractor shall furnish the Project Manager with a schedule of approximate dates on which the Contractor intends to accomplish work in each specific area of site, building or portion thereof. In addition, Contractor shall notify the Project Manager two weeks in advance of the proposed date of starting work in each specific area of site, building or portion thereof. Arrange such dates to insure accomplishment of this work in successive phases mutually agreeable to Project Manager and Contractor.

H. Building(s) will be occupied during performance of work and will require coordination and scheduling with the Project Manager to ensure availability of unobstructed access to the space.

1. Contractor shall take all measures and provide all material necessary for protecting existing equipment and property in affected areas of construction against dust and debris and liquids, so that equipment and affected areas to be used in the Medical Centers operations will not be hindered. Contractor shall permit access to Department of Veterans Affairs personnel and patients through other construction areas which serve as routes of access to such affected areas and equipment. Coordinate alteration work in areas occupied by Department of Veterans Affairs so that Medical Center operations will continue during the construction period.

## **1.7 ALTERATIONS**

A. Protection: Provide the following protective measures:

1. Protection of interior of existing structures at all times, from damage, dust and weather inclemency. Wherever work is performed,

floor surfaces that are to remain in place shall be adequately protected prior to starting work, and this protection shall be maintained intact until all work in the area is completed.

#### **1.8 INFECTION PREVENTION MEASURES**

- A. Implement the requirements of VAMC's Infection Control Risk Assessment (ICRA) team. ICRA Group may monitor dust in the vicinity of the construction work and require the Contractor to take corrective action immediately if the safe levels are exceeded.
- B. Medical center Infection Control personnel shall monitor for airborne disease (e.g. aspergillosis) as appropriate during construction. A baseline of conditions may be established by the medical center prior to the start of work and periodically during the construction stage to determine impact of construction activities on indoor air quality. In addition:
- C. The contractor shall not haul debris through patient-care areas without prior approval of the Resident Engineer and the Medical Center. When, approved, debris shall be hauled in enclosed dust proof containers or wrapped in plastic and sealed with duct tape. No sharp objects should be allowed to cut through the plastic. Wipe down the exterior of the containers with a damp rag to remove dust. All equipment, tools, material, etc. transported through occupied areas shall be made free from dust and moisture by vacuuming and wipe down.
- D. There shall be no standing water during construction. This includes water in equipment drip pans and open containers within the construction areas. All accidental spills must be cleaned up and dried within 12 hours. Remove and dispose of porous materials that remain damp for more than 72 hours.

#### **1.11 RESTORATION**

- A. Remove, cut, alter, replace, patch and repair existing work as necessary to install new work. Except as otherwise shown or specified, do not cut, alter or remove any structural work, and do not disturb any ducts, plumbing, steam, gas, or electric work without approval of the Resident Engineer. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the Resident Engineer before it is disturbed. Materials and workmanship used in restoring work, shall conform in type and quality to that of original existing construction, except as otherwise shown or specified.

- B. Upon completion of contract, deliver work complete and undamaged.  
Existing work (walls, ceilings, partitions, floors, mechanical and electrical work, lawns, paving, roads, walks, etc.) disturbed or removed as a result of performing required new work, shall be patched, repaired, reinstalled, or replaced with new work, and refinished and left in as good condition as existed before commencing work.
- C. At Contractor's own expense, Contractor shall immediately restore to service and repair any damage caused by Contractor's workmen to existing piping and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems (including telephone) which are indicated on drawings and which are not scheduled for discontinuance or abandonment.
- D. Expense of repairs to such utilities and systems not shown on drawings or locations of which are unknown will be covered by adjustment to contract time and price in accordance with clause entitled "CHANGES" (FAR 52.243-4 and VAAR 852.236-88) and "DIFFERING SITE CONDITIONS" (FAR 52.236-2).

**1.12 PHYSICAL DATA (NOT USED)**

**1.13 PROFESSIONAL SURVEYING SERVICES (NOT USED)**

**1.14 LAYOUT OF WORK (NOT USED)**

**1.15 AS-BUILT DRAWINGS (NOT USED)**

**1.16 USE OF ROADWAYS**

- A. For hauling, use only established public roads and roads on Medical Center property.

**1.17 RESIDENT ENGINEER'S FIELD OFFICE (NOT USED)**

**1.18 TEMPORARY USE OF MECHANICAL AND ELECTRICAL EQUIPMENT (NOT USED)**

**1.19 TEMPORARY USE OF EXISTING ELEVATORS**

- A. Use of existing elevators for handling building materials and Contractor's personnel will be permitted.

**1.20 TEMPORARY USE OF NEW ELEVATORS (NOT USED)**

**1.21 TEMPORARY TOILETS (NOT USED)**

**1.22 AVAILABILITY AND USE OF UTILITY SERVICES**

- A. The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as

specified in the contract. The Contractor shall carefully conserve any utilities furnished without charge.

B. Water (for Construction and Testing): Water is available at no cost to the Contractor

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**SECTION 01 33 23**  
**SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES**

- 1-1. Refer to Articles titled SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FAR 52.236-21) and, SPECIAL NOTES (VAAR 852.236-91), in GENERAL CONDITIONS.
- 1-2. For the purposes of this contract, samples, test reports, certificates, and manufacturers' literature and data shall also be subject to the previously referenced requirements. The following text refers to all items collectively as SUBMITTALS.
- 1-3. Submit for approval, all of the items specifically mentioned under the separate sections of the specification, with information sufficient to evidence full compliance with contract requirements. Materials, fabricated articles and the like to be installed in permanent work shall equal those of approved submittals. After an item has been approved, no change in brand or make will be permitted unless:
  - A. Satisfactory written evidence is presented to, and approved by Contracting Officer, that manufacturer cannot make scheduled delivery of approved item or;
  - B. Item delivered has been rejected and substitution of a suitable item is an urgent necessity or;
  - C. Other conditions become apparent which indicates approval of such substitute item to be in best interest of the Government.
- 1-4. Forward submittals in sufficient time to permit proper consideration and approval action by Government. Time submission to assure adequate lead time for procurement of contract required items. Delays attributable to untimely and rejected submittals will not serve as a basis for extending contract time for completion.
- 1-5. Submittals will be reviewed for compliance with contract requirements by Project Manager, and action thereon will be taken by Project Manager on behalf of the Contracting Officer.
- 1-6. Upon receipt of submittals, Project Manager will assign a file number thereto. Contractor, in any subsequent correspondence, shall refer to this file and identification number to expedite replies relative to previously approved or disapproved submittals.
- 1-7. The Government reserves the right to require additional submittals, whether or not particularly mentioned in this contract. If additional submittals beyond those required by the contract are furnished pursuant to request therefor by Contracting Officer, adjustment in contract price

and time will be made in accordance with Articles titled CHANGES (FAR 52.243-4) and CHANGES SUPPLEMENT (VAAR 852.236-88) of the GENERAL CONDITIONS.

- 1-8. Schedules called for in specifications and shown on shop drawings shall be submitted for use and information of Department of Veterans Affairs and Project Manager. However, the Contractor shall assume responsibility for coordinating and verifying schedules. The Contracting Officer and Project Manager assumes no responsibility for checking schedules or layout drawings for exact sizes, exact numbers and detailed positioning of items.
- 1-9. Submittals must be submitted by Contractor only and shipped prepaid. Contracting Officer assumes no responsibility for checking quantities or exact numbers included in such submittals.
  - A. Submit samples in single units unless otherwise specified. Submit shop drawings, schedules, manufacturers' literature and data, and certificates in duplicate, except where a greater number is specified.
  - B. Submittals will receive consideration only when covered by a transmittal letter signed by Contractor. Letter shall be sent via first class mail or email and shall contain the list of items, name of Medical Center, name of Contractor, contract number, applicable specification paragraph numbers, applicable drawing numbers (and other information required for exact identification of location for each item), manufacturer and brand, ASTM or Federal Specification Number (if any) and such additional information as may be required by specifications for particular item being furnished. In addition, catalogs shall be marked to indicate specific items submitted for approval.
    1. A copy of letter must be enclosed with items, and any items received without identification letter will be considered "unclaimed goods" and held for a limited time only.
    2. Each sample, certificate, manufacturers' literature and data shall be labeled to indicate the name and location of the Medical Center, name of Contractor, manufacturer, brand, contract number and ASTM or Federal Specification Number as applicable and location(s) on project.
    3. Required certificates shall be signed by an authorized representative of manufacturer or supplier of material, and by Contractor.
  - C. If submittal samples have been disapproved, resubmit new samples as soon as possible after notification of disapproval. Such new samples shall be

marked "Resubmitted Sample" in addition to containing other previously specified information required on label and in transmittal letter.

- D. Approved samples will be kept on file by the Project Manager at the site until completion of contract, at which time such samples will be delivered to Contractor as Contractor's property. Where noted in technical sections of specifications, approved samples in good condition may be used in their proper locations in contract work. At completion of contract, samples that are not approved will be returned to Contractor only upon request and at Contractor's expense. Such request should be made prior to completion of the contract. Disapproved samples that are not requested for return by Contractor will be discarded after completion of contract.
  - E. Submittal drawings (shop, erection or setting drawings) and schedules, required for work of various trades, shall be checked before submission by technically qualified employees of Contractor for accuracy, completeness and compliance with contract requirements. These drawings and schedules shall be stamped and signed by Contractor certifying to such check.
- 1-10. Samples, shop drawings, test reports, certificates and manufacturers' literature and data, shall be submitted for approval to

Gary Stuckenschmidt

VA Nebraska Western Iowa Health Care System

4101 Woolworth Avenue, Bldg 4, Mail Code 138

Omaha, NE 68105

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## SECTION 088700

### WINDOW FILM

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Safety and security films.

##### 1.2 RELATED SECTIONS: (Not Used)

##### 1.3 REFERENCES

- A. ASHRAE - American Society for Heating, Refrigeration, and Air Conditioning Engineers; Handbook of Fundamentals.
- B. ASTM International (ASTM):
  - 1. ASTM D 882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting.
  - 2. ASTM D 1004 - Standard Test Method for Tear Resistance (Graves Tear) of Plastic Film and Sheeting.
  - 3. ASTM D 1044 - Standard Method of Test for Resistance of Transparent Plastics to Surface Abrasion (Taber Abrader Test).
  - 4. ASTM D 2582 - Standard Test Method for Puncture-Propagation Tear Resistance of Plastic Film and Thin Sheeting.
  - 5. ASTM D 4830 - Standard Test Methods for Characterizing Thermoplastic Fabrics Used in Roofing and Waterproofing.
  - 6. ASTM E 84 - Standard Method of Test for Surface Burning Characteristics of Building Materials.
  - 7. ASTM E 308 - Standard Recommended Practice for Spectrophotometry and Description of Color in CIE 1931 System. ASTM E 903 - Standard Methods of Test for Solar Absorbance, Reflectance and Transmittance of Materials Using Integrating Spheres.
  - 8. ASTM E 1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
  - 9. ASTM E 1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.
- C. Window 5.2 - A Computer Tool for Analyzing Window Thermal Performance; Lawrence Berkeley Laboratory.
- D. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.
- E. Consumer Products Safety Commission 16 CFR, Part 1201 - Safety Standard for Architectural Glazing Materials.
- F. GSA Standard Test for Glazing and Glazing Systems Subject to Airblast Loadings.
- G. ISO 16933, International Standard for Glass in Building: Explosion-resistant security glazing - Test and classification for arena air-blast testing.
- H. Underwriters Laboratories Inc. (UL): UL 972 - Burglary Resisting Glazing Material.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Fire Performance: Surface burning characteristics when tested in accordance ASTM E 84:
  - 1. Flame Spread: 25, maximum.
  - 2. Smoke Developed: 450, maximum.
- B. Abrasion Resistance: Film must have a surface coating that is resistant to abrasion such that, less than 5 percent increase of transmitted light haze will result in accordance with ASTM D 1044 using 50 cycles, 500 grams weight, and the CS10F Calbrase Wheel.

#### 1.5 SUBMITTALS

- A. Submit under provisions of Section 01 33 23.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
- C. Selection Samples: For each film specified, submit film samples representing manufacturer's film type for the project.
- D. Verification Samples: For each film specified, two samples representing film color and pattern.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years experience.
- B. Installer Qualifications: All products listed in this section are to be installed by a single Installer with a minimum of five years demonstrated experience in installing products of the same type and scope as specified.
  - 1. Provide documentation that the installer is authorized by the Manufacturer to perform Work specified in this section.
  - 2. Provide a Glass Stress Analysis of the existing glass and proposed glass/film combination as recommended by the film manufacturer.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Finish areas designated by Project Manager.
  - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Project Manager.
  - 3. Refinish mock-up area as required to produce acceptable work.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.

## 1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

## 1.9 WARRANTY

- A. At project closeout, provide to Owner or Owners Representative an executed current copy of the manufacturer's standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Recommended Manufacturer: 3M Window Film , which is located at: 3M Center Bldg. 0235-02-S-27 ; St. Paul, MN 55144-1000; Toll Free Tel: 800-480-1704; Tel: 651-733-2222; Fax: 651-737-3446; [Email: pneumann@mmm.com](mailto:pneumann@mmm.com); Web: [www.3m.com/windowfilm](http://www.3m.com/windowfilm)
- B. Requests for substitutions will be considered if properly identified and approved prior to bidding and award of work.

### 2.2 CLEAR MICROLAYERED SAFETY AND SECURITY WINDOW FILM

- A. Clear Microlayered Safety and Security Window Film: 3M Ultra S400 Safety and Security Window Film. Optically clear micro-layered polyester film, with a durable acrylic abrasion resistant coating over one surface and a pressure sensitive adhesive on the other. The film is clear and will not contain dyed polyester. Film contains at least twenty-eight micro-layers.
  - 1. Physical / Mechanical Performance Properties:
    - a. Film Color: Clear.
    - b. Thickness: Nominal 4.0 mils (0.1 mm), comprised of 28 micro-layers.
    - c. Tensile Strength (ASTM D 882): 30,000 psi.
    - d. Break Strength (ASTM D 882) (Per Inch Width): 120 lbs.
    - e. Tear Resistance (ASTM D 1004): Greater than 780 lbs.
    - f. Puncture Propagation Tear (ASTM D 2582): 7.5 lbs.
    - g. Young's Modulus (ASTM D 882): 500 kpsi nominal.
  - 2. Uniformity: No noticeable pin holes, streaks, thin spots, scratches, banding or other optical defects.
  - 3. Variation in Total Transmission Across the Width: Less than 2 percent over the average at any portion along the length.
  - 4. Identification: Labeled as to Manufacturer as listed in this Section.
  - 5. Solar Performance Properties: Film applied to 1/4 Inch (6.4 mm) thick clear glass.
    - a. Visible Light Transmission (ASTM E 903): 86 percent.
    - b. Visible Reflection (ASTM E 903): Not more than 11 percent.
    - c. Ultraviolet Transmission (ASTM E 903): Less than 1 percent.
    - d. Solar Heat Gain Coefficient (ASTM E 903): 0.79.
  - 6. Impact Resistance for Safety Glazing: Tested on 1/4 inch (6.4 mm) annealed glass.
    - a. Safety Rating (CPSC 16 CFR, Part 1201): Category II (400 ft.-lbs).
    - b. Safety Rating (ANSI Z97.1): Class A, Unlimited Size.

- 7 Windstorm Protection:
  - a. Film shall pass impact of Medium Large Missile "C" and withstand subsequent pressure cycling (per ASTMs E 1996 and E 1886) at 70 psf Design Pressure with use of 3M Impact Protection Adhesive attachment system.
  - b. Film shall pass impact of Small Missile "A" and withstand subsequent pressure cycling (per ASTMs E 1996 and E 1886) at 50 psf Design Pressure with use of 3M Impact Protection Adhesive attachment system.
- 8 Bomb Blast Mitigation: Independent testing with results from high explosive arena blast testing.
  - a. GSA Rating with minimum blast pressure and impulse of 4 psi and 28 psi.msec, respectively: Level 2 (No Hazard / Very High Protection).

### 2.3 IMPACT PROTECTION ADHESIVE ATTACHEMENT SYSTEM

- A. Use wet adhesive attachment product as specified and recommended by film manufacture. Coordinate with Project Manager for color selection.

### 2.4 IMPACT PROTECTION PROFILE ATTACHMENT SYSTEM

- A. Use adhesive edge attachment product as specified and recommended by film manufacture. Coordinate with Project Manager for color selection.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. If preparation of glass surfaces is the responsibility of another installer, notify Project Manager in writing of deviations from manufacturer's recommended installation tolerances and conditions.
  1. Glass surfaces receiving new film should first be examined to verify that they are free from defects and imperfections, which will affect the final appearance:
- B. Do not proceed with installation until glass surfaces have been properly prepared and deviations from manufacturer's recommended tolerances are corrected. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result under the project conditions.
- C. Commencement of installation constitutes acceptance of conditions.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Cut film edges neatly and square at a uniform distance of 1/8 inch (3 mm) to 1/16 inch (1.5 mm) of window sealant. Use new blade tips after 3 to 4 cuts.
- C. Spray the slip solution, composed of one capful of baby shampoo or dishwashing liquid to 1 gallon of water, on window glass and adhesive to facilitate proper positioning of film.
- D. Apply film to glass and lightly spray film with slip solution.

- E. Squeegee from top to bottom of window. Spray slip solution to film and squeegee a second time.
- F. Bump film edge with lint-free towel wrapped around edge of a 5-way tool.
- G. Upon completion of film application, allow 30 days for moisture from film installation to dry thoroughly, and to allow film to dry flat with no moisture dimples when viewed under normal viewing conditions.
- H. Install impact protection adhesive or impact protection profile attachment system per manufactures recommendations based on window type.

#### 3.4 CLEANING AND PROTECTION

- A. Remove left over material and debris from Work area. Use necessary means to protect film before, during, and after installation.
- B. Touch-up, repair or replace damaged products before Substantial Completion.
- C. After application of film, wash film using common window cleaning solutions, including ammonia solutions, 30 days after application. Do not use abrasive type cleaning agents and bristle brushes to avoid scratching film. Use synthetic sponges or soft cloths.

END OF SECTION